

## D.C. or A.C. Valve Solenoid

# 3

Product group

### X BR 1. Supplement

- To VDE 0580
- Armature space pressure-tight up to 50 bars static pressure
- Spring-mounted sealing nipples at both ends of the armature
- Coil winding to insulation rating F
- Electrical connection and protection rating if mounted correctly:
  - connection by spade connectors to DIN 46247 protection to DIN 40050 IP00
  - connection by plug connector Z KC cable gland (2 positions x 180°) protection to DIN 40050 IP65
- Mounting via flange with 2 countersunk screws M 3 centre thread
- Easy exchange of the solenoid body without opening the pneumatic circuit
- Sealing between solenoid and valve through o-ring
- Special designs on request
- Please note that the physically generated noise caused by valve solenoids may be disturbing in quiet rooms, particularly if mounted on a resonant base!
- Application examples:  
Actuation of 2/2 and 3/2 way valves, particularly for pneumatic application and for other gaseous and liquid, neutral media.

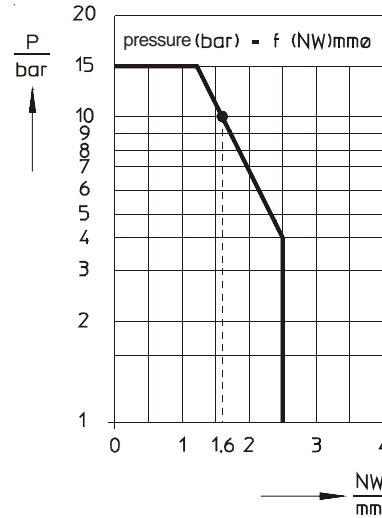


Fig. 1: X BR P 022 K54 A01



**Technical data**

| <b>X BR P 022</b>                    |      |             |          |
|--------------------------------------|------|-------------|----------|
| Operating mode                       |      | S1 (100 %)  |          |
| Rated Power $P_{20}$                 | D.C. | (W)         | 6.8      |
|                                      | A.C. | (VA)        | 10 / 7.5 |
| Stroke s                             |      | (mm)        | 0.5      |
| Ambient temperature $\vartheta_{11}$ |      | (°C)        | 50       |
| Rated magnetic force $F_M$ (N)       | D.C. | Stroke s mm | 22       |
|                                      |      | Stroke 0 mm | 4.5      |
| without spring                       | A.C. | Stroke s mm | 7.0      |
|                                      |      | Stroke 0 mm | 3.8      |
| Solenoid weight $m_M$                |      | (kg)        | 0.085    |
| Armature weight $m_A$                |      | (kg)        | 0.006    |



**Fig. 2:** Switchable pressure as a function of the poppet valve orifice  
Listed type orifice = Ø 1,6 mm

Rated voltage **===** 24 V, or 230 V / 50 Hz resp., on request an adaption of the winding to a rated voltage of max. **===** 230 V, or 250 V / 50 - 60 Hz resp. is possible

The magnetic force values indicated in the table refer to 90 % of the rated voltage, without spring ( $U_N =$  **===** 24 V, or 230 V / 50 Hz resp., magnetic force may deviate with other voltages) and hot condition. The magnetic-force values may deviate by approx. ± 10 % from the table values due to natural dispersion.

We recommend to use compressed air to DIN ISO 8573/1, rating 3. For lubricating the compressed air, elastomer-neutral oils are to be used, otherwise please contact the manufacturer.

**Please make sure that the described devices are suitable for your application. Please find further details and definitions in our Technical Explanation or, respectively, in VDE 0580.**

**Note on the technical harmonisation guidelines within the EU**



Electromagnetic solenoids of this product range are subject to the low-voltage guideline 73 / 23 EWG.

To guarantee the targets of this regulation, products are manufactured and inspected to the valid edition of DIN VDE 0580. This also equals a declaration of conformity by the manufacturer.

These data are valid for the medium compressed air for application as 3/2 way valves de-energize to lock. The exhaust orifice has to be adapted to the valve orifice.

The hot condition is based on

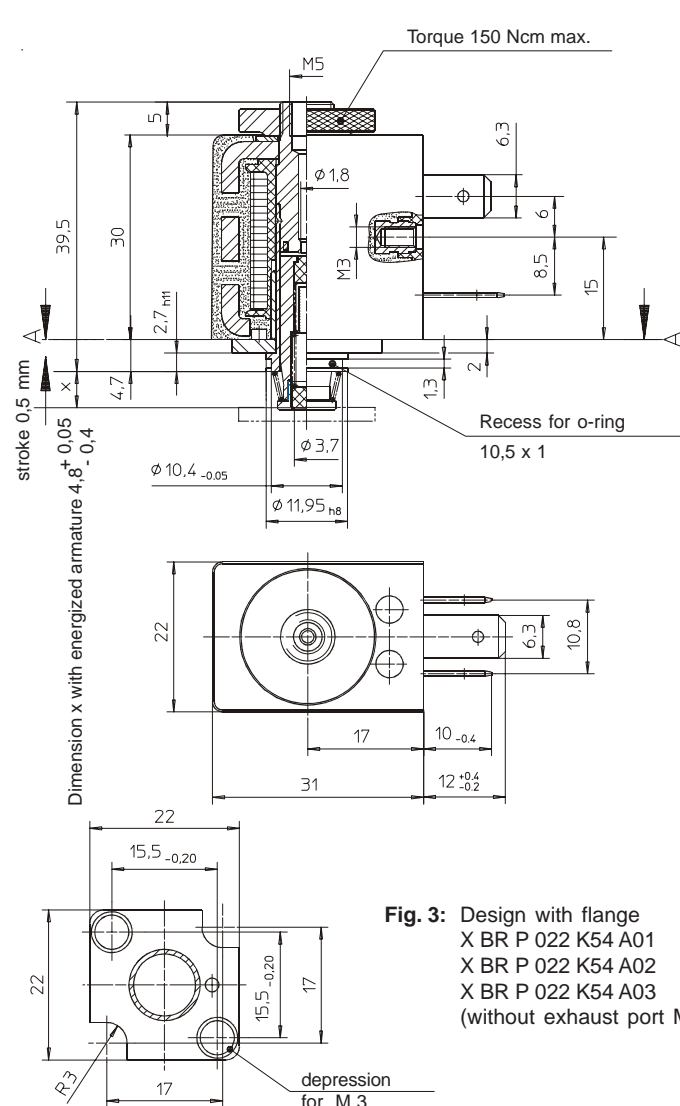
- a) mounting on a heat insulating base
- b) rated voltage **===** 24 V, or 230 V / 50 Hz resp.
- c) operating mode S1
- d) reference temperature 50° C.

Operating times and max. switching frequency are not indicated, because they depend on the particular operating case and on the pressure. The max. switching frequency may be up to 36,000 s/h, depending on the application.

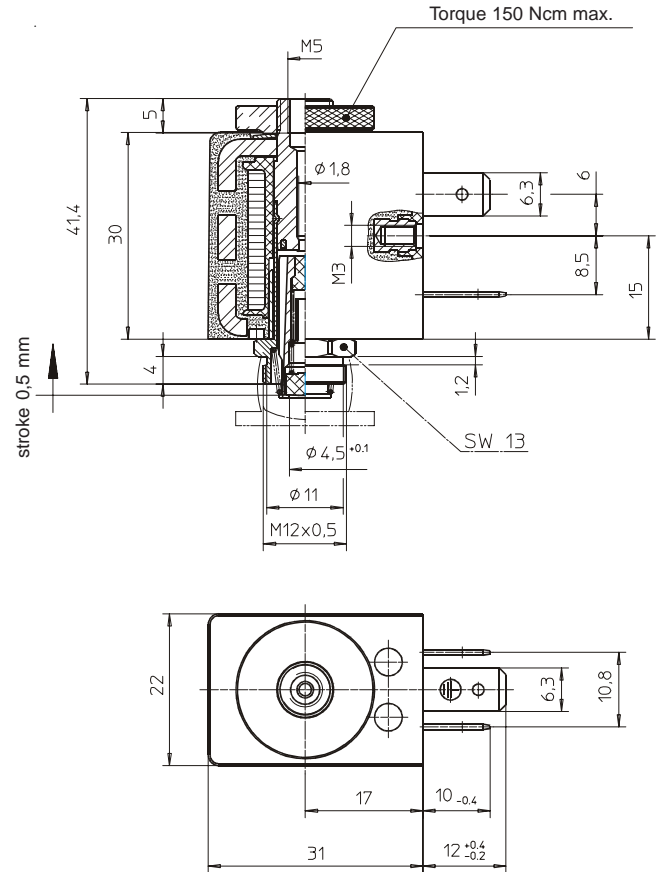
**Note on the EMC (electromagnetic compatibility) guideline 89/336 EWG**

Electromagnetic solenoids are not affected by this guideline because neither do they cause electromagnetic disturbances nor can they be disturbed through electromagnetic disturbances. Therefore, the adherence to the EMC guideline has to be guaranteed by the user through appropriate circuitry wiring. Examples for protection circuits can be taken from the corresponding technical documents.

**Dimensions sheet**



**Fig. 3:** Design with flange  
X BR P 022 K54 A01  
X BR P 022 K54 A02  
X BR P 022 K54 A03  
(without exhaust port M5)

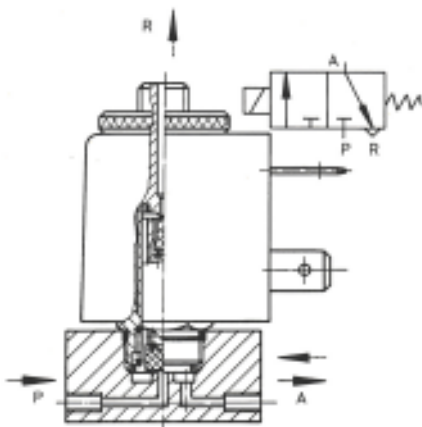


**Fig. 4:** Design with central thread  
X BR P 022 K54 A11  
X BR P 022 K54 A12  
X BR P 022 K54 A13  
(without exhaust port M5)

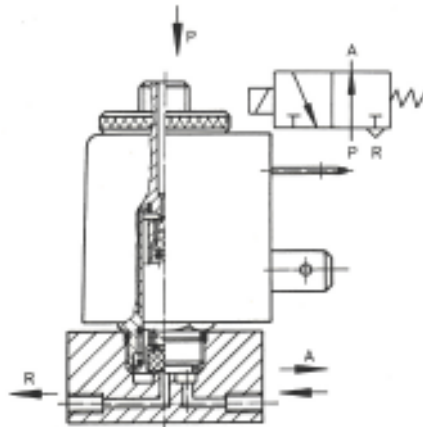
Plug connector DIN 43650-BM2 on request

**Application example and function**

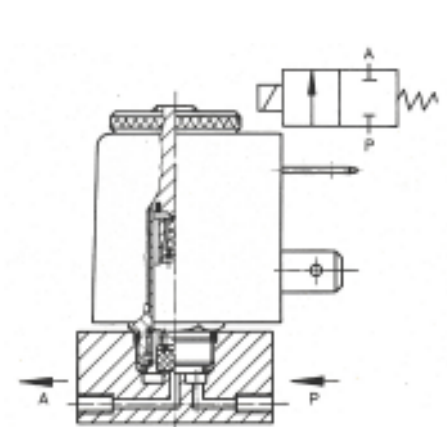
The solenoids shown are not ready-to-use devices in the sense of DIN VDE 0580. The general requirements and protective measures to be taken by the user, are included in DIN VDE 0580. The use of the shown devices in safety relevant applications need always the written agreement of MSM.



**Fig. 5:** X BR P 022 K 54 A01 or  
X BR P 022 K 54 A11  
for 3/2-way valve, NC



**Fig. 6:** X BR P 022 K 54 A02 or  
X BR P 022 K 54 A12  
for 3/2-way valve, NO



**Fig. 7:** X BR P 022 K 54 A03 or  
X BR P 022 K 54 A13  
for 2/2-way valve

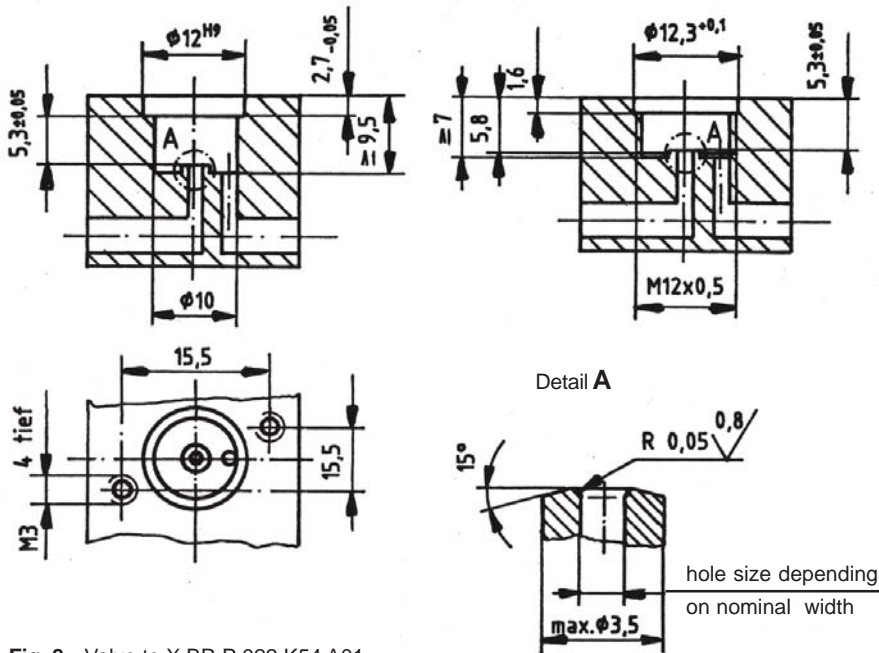


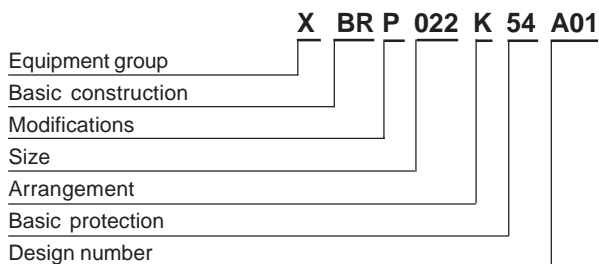
Fig. 8: Valve to X BR P 022 K54 A01

Guiding values for the valve construction corresponding to the indicated listed values (stroke and rated orifice).

The valve construction to be made according to fig. 8.

The valve seat with largest possible rectangularity to the armature axis of the solenoid and a conical profile with a smooth surface ensure a maximum performance and service life of the solenoid valve.

### Type code



### Order Example

|     |                      |                    |
|-----|----------------------|--------------------|
| DC: | Type                 | X BR P 022 K54 A01 |
|     | Voltage              | <b>≡</b> 24 V      |
|     | Relative duty rating | S1                 |
| AC: | Type                 | X BR P 022 K54 A01 |
|     | Voltage              | 230 V / 50 Hz      |
|     | Relative duty rating | S1                 |

### Specials

Special designs and modifications are available on request for which full application conditions should be specified in accordance with our -Technical Explanations.